

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number
WO 2005/062728 A2

(51) International Patent Classification: Not classified

(21) International Application Number:
PCT/KR2004/002730

(22) International Filing Date: 27 October 2004 (27.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10-2003-0097867

26 December 2003 (26.12.2003) KR

(71) Applicants (for all designated States except US): ELEC-
TRONICS AND TELECOMMUNICATIONS RE-
SEARCH INSTITUTE [KR/KR]; 161, Gajeong-dong,
Yuseong-gu, Daejeon 305-350 (KR). SAMSUNG ELEC-
TRONICS CO., LTD. [KR/KR]; 416, Maetan-dong,
Yeongtong-gu, Suwon-si, Gyeonggi-do 442-742 (KR). KT
Corporation [KR/KR]; 206, Jungja-dong, Bundang-gu,
Seongnam-city, Kyonggi-do 463-711 (KR). SK TELE-
COM CO., LTD. [KR/KR]; 99, Seorin-dong, Jongro-gu,
Seoul 110-110 (KR). KTFREETEL CO., LTD. [KR/KR];
890-20, Daechi-dong, Gangnam-gu, Seoul 135-280 (KR).

HANARO TELECOM, INC. [KR/KR]; Shindongah
Fire & Marine Insurance Building 43, Taepyeongno 2-ga,
Jung-gu, Seoul 100-733 (KR).

(72) Inventors; and

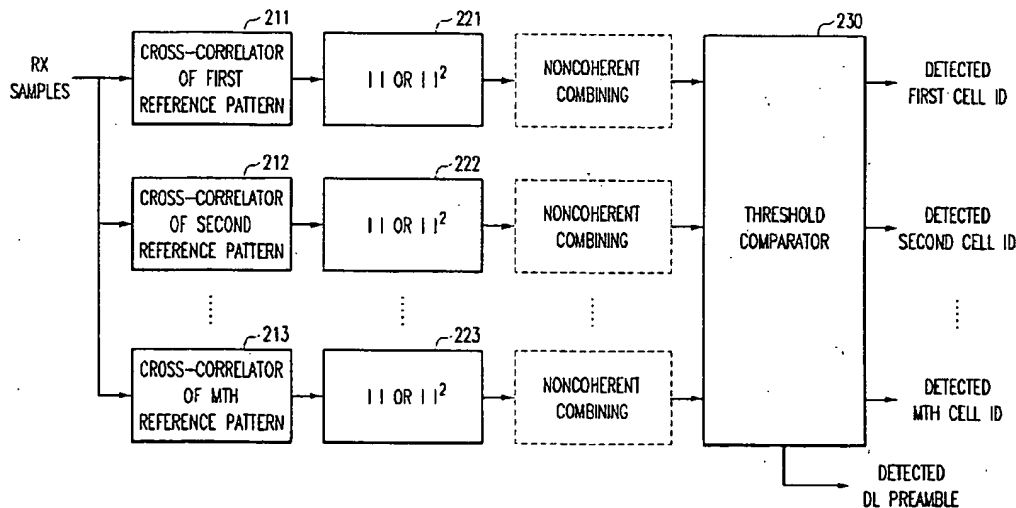
(75) Inventors/Applicants (for US only): LIM, Hyung-Soo
[KR/KR]; Mugunghwa Apt. 102-206, Wolpyong
2-dong, Seo-gu, Daejeon-city 302-282 (KR). YEH,
Choong-II [KR/KR]; Sinseonmaeul apt. 209-202,
Kwanjeo-dong, Seo-gu, Daejeon-city 302-243 (KR).
LEE, Yu-Ro [KR/KR]; Expo Apt. 410-807, Jeon-
min-dong, Yuseong-gu, Daejeon-city 305-762 (KR).
KWON, Dong-Seung [KR/KR]; Expo Apt. 204-1304,
Jeonmin-dong, Yuseong-gu, Daejeon-city 305-390 (KR).
HWANG, Seung-Ku [KR/KR]; Eunma Apt. 18-701,
Daechi 2-dong, Kangnam-gu, Seoul 135-969 (KR).

(74) Agent: YOU ME PATENT AND LAW FIRM; Seolim
Bldg., 649-10, Yoksam-dong, Kangnam-ku, Seoul 135-080
(KR).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,

[Continued on next page]

(54) Title: METHOD FOR CONSTRUCTING FRAME PREAMBLE IN OFDM WIRELESS COMMUNICATION SYSTEM,
AND METHOD FOR ACQUIRING FRAME SYNCHRONIZATION AND SEARCHING CELLS USING PREAMBLE



(57) Abstract: Disclosed are a method for constructing a frame preamble in an OFDM wireless communication system, and a method for acquiring frame synchronization and searching cells using the preamble. The preamble is arranged at the beginning of a frame and constructed of a pattern repeated an integer number of times, and a CP. The pattern has a length shorter than a single OFDM symbol interval. The length of the repetitive pattern is not limited to an integer number of times a single OFDM symbol interval. Frame synchronization can be acquired by observing cross-correlation of a received signal and reference patterns and detecting the moment when the absolute value of the cross-correlation exceeds a predetermined threshold. Otherwise, frame synchronization can be acquired by observing auto-correlation of the received signal using repeated patterns included in the received signal and detecting the moment when the absolute value of the auto-correlation becomes the maximum value.

WO 2005/062728 A2



GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.